

What is claimed is:

1. A luminescent material for scintillators, comprising a single crystal of an Yb-containing mixed-crystal oxide which has a composition represented by either one of  $R_3Al_5O_{12}$ ,  $R_3Ga_5O_{12}$  and  
5  $Li_6R(BO_3)_3$ , wherein R is a mixture of Yb and either one of Y, Gd and Lu, and said Yb as an element capable of forming an optically active state called CTS together with a neighboring negative ion (oxygen ion).
2. A luminescent material for scintillators, comprising a single crystal of an Yb-containing  
10 mixed-crystal oxide which has a composition represented by either one of  $Li_3R_2Ga_3O_{12}$  and  $Gd_3R_2Ga_3O_{12}$ , wherein R is a mixture of Yb and either one of Y, Gd and Lu, and said Yb as an element capable of forming an optically active state called CTS together with a neighboring negative ion (oxygen ion).
- 15 3. The luminescent material as defined in claim 1 or 2, wherein the molar ratio of either one of Y, Gd and Lu to Yb in said R satisfies the conditions expressed by the following formulas:  
$$1.04x + 1.02y \leq 1.03;$$
$$x + y = 1;$$
$$0 < x < 1; \text{ and}$$
  
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$$0 < y < 1,$$

wherein x is a molar ratio of Yb, and y is a molar ratio of either one of Y, Gd and Lu.

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